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## INFORMATION DESCLOSURES

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Sheet 1 of 2

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Application Number	10/768,724	
Filing Date	JANUARY 30, 2004	
First Named Inventor .	TAKEAKI EBIHARA, ET AL.	
Group Art Unit	UNKNOWN	
Examiner Name	UNKNOWN	
Attorney Docket Number	AMAT/8736/DSM/BCVD/JW	
Submission Date	Anril 30 2004	

			U.S. PATENT	DOCUMENTS	
Examiner Initials*	Cite No.1	Document Number	Publication Date	Name of Patentee or	Pages, Columns, Lines, Where Relevant Passages or Relevant
		Number-Kind Code <sup>2 (f known)</sup>	MM-DD-TTTT	MM-DD-YYYY Applicant of Cited Document	Figures Appear
EC	A1	US-6,627,933 B2	09/30/2003	Juengling	
	A2	US-6,611,316 B2	08/26/2003	Sewell	
	A3	US-6,573,030 B1	06/03/2003	Fairbairn, et al.	_
	A4	US-6,541,397 B1	04/01/2003	Bencher	
	A5	US-6,514,667 B2	02/04/2003	Angelopoulos, et al.	
	A6	US-6;511,791 B1	01/28/2003	Bukofsky, et al.	
	A7	US-6,483,571 B1	11/19/2002	Shiraishi	
	A8	US-6,458,516 B1	10/01/2002	Ye, et al.	
	A9	US-6,423,384 B1	07/23/2002	Khazeni, et al.	
	A10	US-6,403,291 B1	05/29/2001	Bula, et al.	
	A11	US-6,331,380 B1	12/18/2001	Ye, et al.	
	A12	US-6,316,167 B1	11/13/2001	Angelopoulos, et al.	
	A13	US-6,238,850 B1	05/29/2001	Bula, et al.	
	A14	US-8,184,572 B1	02/06/2001	Mountsier, et al.	
1	A15	US-8,143,476	11/07/2000	Ye, et al.	
•	A16	US-6,080,529	06/27/2000	Ye, et al.	
	A17	US-6,042,993	03/28/2000	Leuschner, et al.	
	A18	US-5,830,332	11/03/1998	Babich, et al.	
	A19	US-2004/0023475 A1	02/05/2004	Bonser, et al.	
	A20	US-2003/0186477 A1	10/02/2003	Bencher	
T	A21	US-2003/0091938 A1	05/15/2003	Fairbaim, et al.	
W	A22	US-2002/0001778 A1	01/03/2002	Latchford, et al.	
	A23				
	A24				
	A25				
	A26				
	A27				

Examiner Date Considered 9/30/05

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PTO/SB/08b (08-03)

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Substitute for form 14498/PTO		Application Number	10/768,724		
				Filing Date	JANUARY 30, 2004
INFO	RMATION DISC	CLOS	SURE	First Named Inventor	TAKEAKI EBIHARA, ET AL.
STATEMENT BY APPLICANT			CANT	Group Art Unit	UNKNOWN
		•		Examiner Name	UNKNOWN
(Use as many sheets as necessary)		Attorney Docket Number	AMAT/8736/DSM/BCVD/JW		
Sheet	2	of	2	Submission Date	April 30, 2004

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T²
EC	B1	CANON USA, "Canon Extends Lithography Roadmap: Presents Resolution Capabilities Beyond k1 or 0.25 at BACUS" http://www.usa.canon.com/templatedata/pressrelease/20030904_photomask.html (2 pages), press release dated September 4, 2003.	
	B2	SALEEM H. ZAIDI, ET AL. "Nonlinear Processes to Extend Interferometric Lithography" SPIE Conference on Emerging Lithographic Technologies III, March 1999, SPIE Vol. 3676, pp. 371-378.	
	B3	BRIAN TYRRELL, ET AL. "Investigation of the Physical and Practical Limits of Dense-Only Phase Shift Lithography for Circuit Feature Definition" J. Microlith., Microfab., Microsyst., Vol. 1 No. 3, October 2002.	
	B4	TAKEAKI EBIHARA, ET AL. "Beyond k <sub>1</sub> =0.25 lithography: 70nm L/S patterning using KrF scanners" Proc. SPIE 5256-105, 10 pages, December 2003.	
$\bigvee$	B5	TAKEAKI EBIHARA, ET AL. "150nm Dense/Isolated Contact Hole Study with Canon IDEAL Technique" 21st Annual BACUS Symposium on Photomask Technology, Proceeding of SPIE Vol. 4562, April 2002, pp. 1068-1076.	
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Examiner	(	Date Considered 9/30/	6

\*EXAMINER: Initial if reference considered, whether or not chatten is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English tanguage Translation is attached.

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Substitute for form 1449A/PTO

## CATE TRAD SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 2

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Monication Number	10/768,724	1
Filing Date	JANUARY 30, 2004	
First Named Inventor	TAKEAKI EBIHARA, ET AL.	
Group Art Unit	1763	
Examiner Name	UNKNOWN	
Attorney Docket Number	AMAT/8736/DSM/BCVD/JW	
Submission Date	7/7 2005	7

			U.S. PATENT	DOCUMENTS	
Examiner Initials*	Cite No.1	Document Number  Number-Kind Code <sup>2 (# known)</sup>	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
EC	A1	US- 6,653,735 B1	11/25/2003	YANG, ET AL.	
	A2	US- 6,498,105 B1	12/24/2002	KIM	
	A3	US- 6,352,922 B1	03/05/2002	KIM	
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered, include copy of this form with next communication to applicant. Applicant's unique citation designation number (optional). 2 See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. sKind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. a Applicant is to place a check mark here if English language Translation is attached.

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**SUPPLEMENTAL** INFORMATION DISCLOSURE

STATEMENT BY APPLICANT

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polication Number	10/768,724	
Filing Date	JANUARY 30, 2004	
First Named Inventor	TAKEAKI EBIHARA, ET AL.	
Group Art Unit	1763	
Examiner Name	UNKNOWN	
Attorney Docket Number	AMAT/8736/DSM/BCVD/JW	
Submission Date	7/7 2005	

		NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T²
EC	B1	PCT International Search Report and Written Opinion dated June 8, 2005 (AMAT/8736.PC)	
EC	B2	WEI LIU, ET AL., "Generating Sub-30nm Poly-Silicon Gate Using PECVD Amorphous Carbon as Hardmask and Anti-Reflective Coating" Proceeding of SPIE, (2003) Vol. 4050, pp. 841-848.	
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## DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 2

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Filing Date	JANUAHY 30, 2004	
First Named Inventor	EBIHARA, ET AL.	
Art Unit	1763	
Examiner Name	UNKNOWN	
Attorney Docket Number	AMAT/8736/DSM/BCVD/JW	

			U.S. PATENT	DOCUMENTS	
Examiner tnitials *	Cite No.	Oocument Number  Number - Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevar Passages or Relevant Figures Appear
<u> </u>	A1		00/44/4004	10-10-0	
EC		US-5,022,959	06/11/1991	Itoh, et al.	
	A2	US-5,674,573	10/07/1997	Mitani, et al.	
	A3	US-5,998,100	12/07/1999	Azuma, et al.	
	A4	US-6,214,637	04/10/2001	Kim, et al.	
-	A5	US-2002/0086547	07/04/2002	Mui, et al.	
	A6	US-2004/0023502	02/05/2004	Tzou, et al.	
	A7	US-2004/0038537	02/26/2004	Liu, et al.	
11	A8	US-2004/0166691	08/26/2004	Nieh, et al.	
Y	A9	US-2004/0180551	09/16/2004	Biles, et al.	
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Examiner	Cite	Foreign Patent Document	Publication	Name of Patentee or	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>4</sup>
Initials*	No.1	Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> ( <i>Il known</i> )	Date MM-DD-YYYY	Applicant of Cited Document		
EC	B1	DE 103 28 578 (English abstract)	02/26/2004	Matthias		Х
	B2	EP 0 381 109 (English translation)	01/29/1990	BIRKLE, ET AL.		$\overline{\mathbf{x}}$
	B3	EP 0 901 156	03/10/1999	STEINER		
	B4	JP 09 045633 (English abstract)	02/14/1997	YASUHARU		X
1,	B5	JP 11 026578 (English abstract)	01/29/1999	TETSUJI		X
Ψ	B6	WO 00/05763	02/03/2000	NAIK, ET AL.		
						_

"EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. Applicant's unique citation designation number (optional), 3 See Kinds Codes of USPTO Patent Documents at <a href="https://www.uspto.cov">www.uspto.cov</a> or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 4 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. Applicant is to place a check mark here if English language Translation is attached.

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SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet of

Complete if Known				
Application Number	10/768,724			
Filing Date	JANUARY 30, 2004			
First Named Inventor	EBIHARA, ET AL.			
Art Unit	1763			
Examiner Name	UNKNOWN			
Attorney Docket Number	AMAT/8736/DSM/BCVD/JW			

		NON PATENT LITERATURE DOCUMENTS		
Examiner Initials	Cite No. <sup>1</sup>			
EC	C1	PCT Notification of Transmittal of the International Search Report dated May 31, 2005 for PCT/US05/008070. (AMAT/8245PCT)		
EC	C2	PCT Written Opinion dated May 31, 2005 for PCT/US05/008070. (AMAT/8245PCT)		
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Examiner Signature	Evicohn	Date Considered	9/30/05

<sup>\*</sup>EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance

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